

Progress on U.S. ATLAS (A Toroidal LHC Apparatus) Construction Activities

1st Quarter FY01



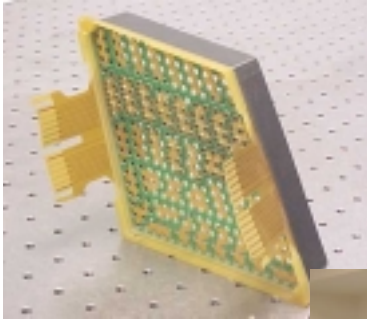
Shown far left, a Muon Monitored Drift Tube (MDT) chamber from Amsterdam undergoing quality assurance measurements at the CERN Tomography facility. X-Ray tomography facility shown near left, with Steve Mulhall, right, of BNL, and CERN physicists. The crate shown below left contains recently arrived MDT chamber from Boston University awaiting similar quality assurance measurements, to be followed by additional MDT chambers from University of Michigan and Seattle.

Shown right, installation of the Omega seals onto the Liquid Argon Calorimeter Barrel Cryostat, at Kawasaki Heavy Industries, Japan.



2nd Quarter FY01

**U.S. ATLAS Transition Radiation Tracker (TRT)
Production (below)...**

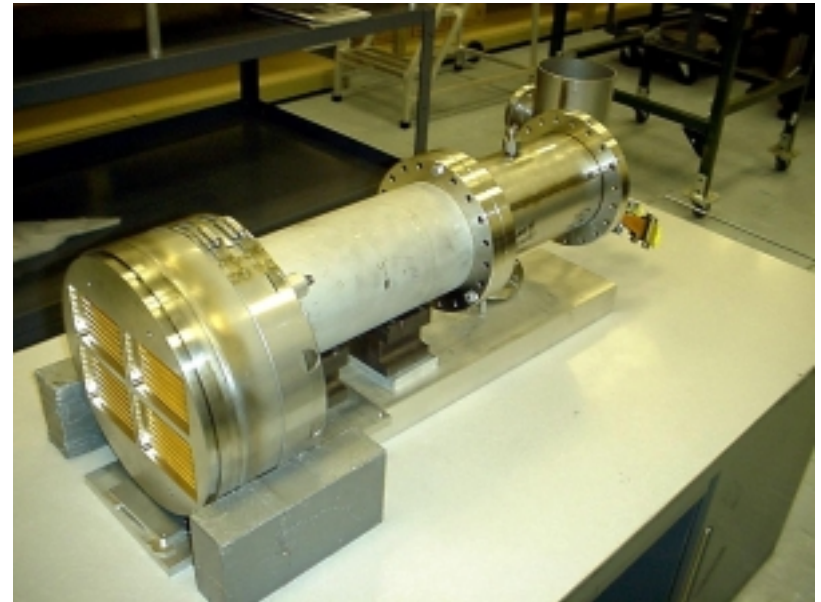


**Left- TRT wire joint station
unit at Duke University.**

**Right- TRT
component prep
and straw
subassembly at
Hampton
University.**

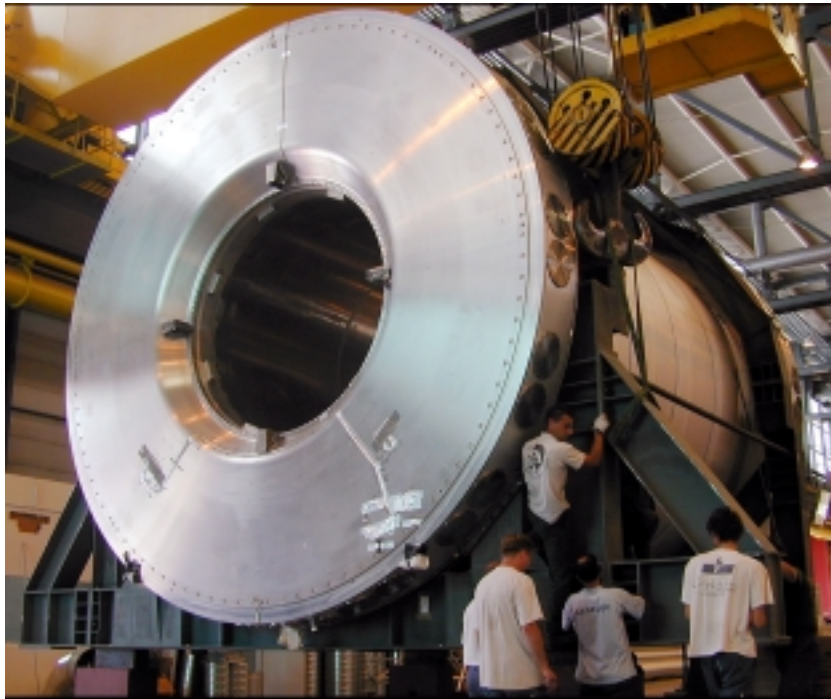


**Left- TRT Shell
production at
Indiana
University.**



**Above- A Signal Feedthrough for the Liquid
Argon Electromagnetic Calorimeter, produced
at BNL. Sixty-four feedthroughs will be
produced, with production underway at 1-2
feedthroughs/week, and 35 feedthroughs
expected to be shipped to CERN by the end of
May.**

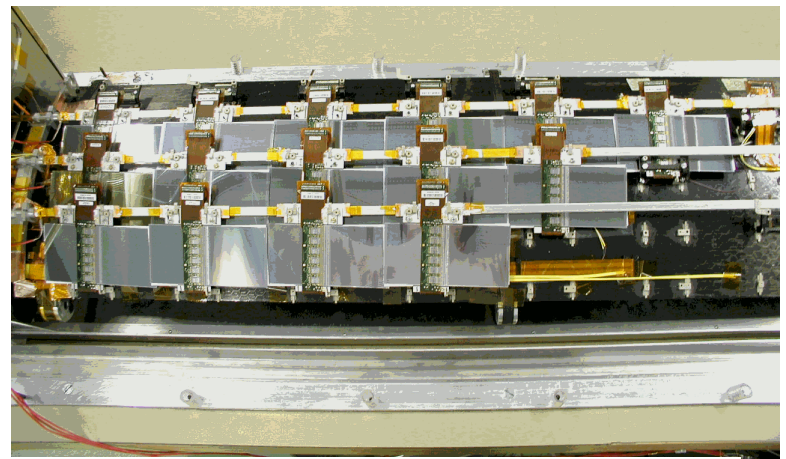
3rd Quarter FY01



Left- The ATLAS liquid argon calorimeter barrel cryostat after arrival at CERN from Japan. It was fabricated by Kawasaki Heavy Industries Ltd., managed and under contract from Brookhaven National Laboratory (BNL) as part of the U.S. ATLAS Project.

This cryostat, an important U.S. deliverable, consists of two concentric cylinders made of aluminium: the outer vacuum vessel, 5.5 m in diameter and 7 m long, and the inner cold vessel which will contain the electromagnetic barrel calorimeter immersed in liquid argon. The cryostat is now located in building 180 where it will be equipped with 64 feed-throughs which serve for the passage of 122,880 electrical lines which will carry the signals of the calorimeter.

Right- The ATLAS Inner Detector Semi-Conductor Tracker (SCT) group passed an important milestone when the barrel system test performance was reviewed. The picture shows 15 SCT barrel modules at CERN, where tests supported by the University of California-Santa Cruz indicated that the design of the barrel module meets the electrical performance requirements of ATLAS.



The four barrel production clusters in the U.S, Japan, Scandinavia, and UK have all built several modules and are now preparing their infrastructure and tooling for mass-production of more than 2000 modules.

4th Quarter FY01



Above- U.S. ATLAS/BNL and CERN personnel with a BNL-produced signal feedthrough during installation into the barrel cryostat at CERN, Bldg 180 (see also picture at top right). Shown here, from l-r: FRONT- Bob Hackenburg (BNL), Physicist; Tom Muller (BNL), Project Engineer; Pierre Pailler (CERN), Cryo Group Leader; Todd Corwin and Ken Sexton (BNL) technicians. BACK- Patrick Fassnacht (CERN) Bldg Mgr; Dave Pate (BNL technician on-site at CERN).

Right- A module of the ATLAS Endcap-Inner-Layer (EIL)1 series muon Monitored Drift Tube (MDT) chamber, built by the U.S. Boston Muon Consortium of Universities, on a cosmic-ray test stand. Numerous high energy muon cosmic-ray tests of a module from this series have been performed, corresponding to 50,000,000 cosmic-ray triggers. Chamber resolution and operational characteristics have been observed over long periods, and data acquisition modules produced by the University of Michigan have been tested. Data has been quite good, and has indicated single tube resolution to be within the ATLAS specification of 80 μm per tube.



Above- At CERN, BNL-produced Liquid Argon Calorimeter signal feedthroughs, and the mechanics for HV feedthroughs being installed in the calorimeter barrel cryostat.

